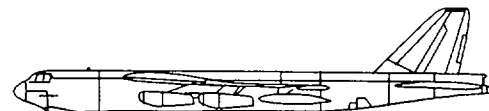# The Strategic Air Campaign:
A Practical Application
of
Clausewitz's "Center of Gravity"

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Report Documentation Page

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The *Strategic Air Campaign:*
A Practical Application of Clausewitz's "Center of Gravity"

> *"These events [during Napoleans's campaigns] are proof that success is not due simply to general causes. Particular factors can often be decisive--details only known to those who were on the spot. There can also be moral factors which never come to light; while issues can be decided by chances and incidents so minute as to figure in histories simply as anecdotes.*
>
> *What the theorist has to say here is this: one must keep the dominant characteristics of both belligerents in mind. Out of these characteristics a certain center of gravity develops, the hub of all power and movement, on which everything depends. That is the point against which all our energies should be directed."*
>
> *Carl Von Clausewitz, On War*[1]

The strategic air campaign in *Desert Storm*--employing air forces of the United States Air Force, Navy, Army, Marine Corps, and seven other allied nations--illustrates a practical application of Clausewitz's "center of gravity" theory. In this essay, I'll look first at the concept of a center of gravity--what it is and why it's useful. Then, I'll turn to the theory as applied in the Persian Gulf conflict. Finally, I will briefly critique the theory as applied to see how well it worked.

In his advice from the early Nineteenth Century, Carl von Clausewitz told us to focus on an opponent in order to locate the single "hub of all power and movement, on which everything depends."[2] This hub, or "center of gravity," is the key to accomplishing one's objectives. What Clausewitz advised is still true: a single center might not always exist, but the search is valuable in order to focus the application of military force on worthwhile objectives. But, what was the "center of gravity" in Iraq during the war in the Persian Gulf? And why, in a general sense, should we look for one? I'll address the latter question first.

There are at least four good reasons to search for an opponent's center of gravity. The first can be found in the motto of the fictional Faber College from the movie, Animal House: "Knowledge is good." The search forces us to concentrate on our opponent and may result in the identification of previously unknown weaknesses and strengths. This can lead to opportunity or, at least, minimize war's overabundant risk. Time spent studying our foe is worthwhile. In too many cases, commanders have opted for an easy answer to Clausewitz's challenge to search for a center of gravity. They've missed the subtlety in his advice, "Still, no matter what the central feature of the enemy's power may be--the point on which your efforts must converge--the defeat and destruction of his fighting force remains the best way to begin, and in every case will be a very significant feature of the campaign."[3] Note the nature of the language: an enemy's army may not always be the "center of gravity." And, in the Gulf, it was not necessarily even the best way to begin.

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[1] Carl Von Clausewitz, On War. Edited and translated by Michael Howard and Peter Paret. (Princeton, NJ: Princeton University Press, 1976), 595-596.
[2] Clausewitz, On War, 595-596.
[3] Clausewitz, On War, 596.

Second, the search for a center of gravity, and acting on that center of gravity after identification, prevents wasting effort on "sideshows;" that is, unnecessary or unimportant objectives that do not contribute directly to achieving the overall objective. As Clausewitz said, "Blow after blow must be aimed in the same direction: the victor in other words, must strike with all his strength and not just against a fraction of the enemy's. Not by taking things the easy way--using superior strength to filch some province, preferring the security of this minor conquest to great success--but by constantly seeking out the center of his power, by daring all to win all, will one really defeat the enemy."[4] This same theme--concentrating on worthwhile objectives--extends to the third reason for identifying a center of gravity.

Third, concentrating on an enemy's center of gravity leads to economy of force. Clausewitz advised, "The best strategy is always *to be very strong*; first in general, and then at the decisive point. [emphasis in original]"[5] While this is tactical advice, it also applies in a strategic sense. Focusing on the "hub of all power and movement,"--the decisive point--provides the purest, that is, the most efficient, economy of force.

Finally, and most important, the search for a center of gravity can be the act that ties our ends (political objectives) and our means (military force) together. This results because the search for a center of gravity must begin *after* the definition of our political objectives. To explain this, I start with the following from On War:

> "No one starts a war--or rather, no one in his senses ought to do so--without first being
> clear in his mind what he intends to achieve by that war and how he intends to conduct it.
> The former is the political purpose; the latter is the operational objective. This is the
> governing principle which will set its course, prescribe the scale of means and effort which
> is required, and make its influence felt throughout down to the smallest operational detail."[6]

One cannot correctly identify a center of gravity without first defining the political purpose of a conflict. Is this a war to compel an enemy to do our will? Then the center of gravity may be the armed forces of an opponent. Is this a war against a coalition? Then the center of gravity may be the stronger of the two (or more) partners of the coalition. Is this a war to overthrow a government? Then the center of gravity may be the government itself or the means with which it retains power. But the center of gravity depends upon the political objectives of the conflict and the nature of the opponent. And the first question which must be answered is, "What are the political purposes of this war?" The search for a center of gravity helps in answering this question because there may be multiple centers of gravity, as shown above, based on differing political objectives. The key to finding the "right" center of gravity is the answer to, "What are my political objectives?" On that note, let's turn to the situation in the Persian Gulf and see how the theory was applied.

The first step in identifying the center of gravity is to define our political objectives for a war. On 8 August, 1990, President Bush outlined four political objectives for the U.S.-led coalition in Southwest Asia:[7]

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[4] Clausewitz, On War, 596.
[5] Clausewitz, On War, 204.
[6] Clausewitz, On War, 579.
[7] President George Bush, "In Defense of Saudi Arabia" Speech, 8 August 1990.

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(1) The complete and unconditional withdrawal of Iraqi forces from Kuwait,
(2) The restoration of Kuwait's legitimate government,
(3) Protecting the security and stability of the Persian Gulf, and
(4) Protecting the lives of U.S. citizens abroad.

By 15 January, 1991, the deadline for war, American hostages had been released, and the restoration of Kuwait's legitimate government (goal #2) would have to wait for the ejection of Iraqi forces. The key goals for war, then, were goals #1 and #3. Our political objectives were to get Iraqi forces to withdraw to their own soil and to remove the future threat to the stability of the Persian Gulf. In determining how to use military force to accomplish these political objectives we have to ask some basic questions in order to identify a center of gravity.

First, in a general sense, how do we compel an enemy to do our will? In pure, or *absolute,* war, to borrow Clausewitz's phrase, we do this by removing the means with which an enemy would resist: the enemy's armed forces. We have to keep in mind, however, Clausewitz would call the situation faced by the U.S.-led coalition in 1990-91, an "offensive war with a limited aim,"[8] a term from the Nineteenth Century which does not need updating to fit today's vernacular. This overlay--political constraints which limited the application of force-- served to make the search for an appropriate center of gravity in the Gulf more difficult, and complicated the actions the coalition could take once the center was identified.

Second, again in a general sense, how do we remove or erode the *will* of our opponent? We do this in a limited war by convincing the enemy that the benefits of their chosen course of action are outweighed by the consequences of not complying with our demands. Clausewitz describes it thusly, "... the more modest your own political aim, the less importance you attach to it and the less reluctantly you will abandon it if you must ... The political object--the original motive for the war--will thus determine both the military objective to be reached and the amount of effort it requires."[9] But who makes this decision on costs-benefits?

In a modernized, industrial, and, most of all, *democratic* society, the will to resist our demands is resident in the people. In an underdeveloped, autocratic society, such as Iraq of 1990-91, the will is resident in the key leadership. The key to finding the center of gravity in this situation was finding the Iraqi actor who exercised control of the situation. Who could make the decision to withdraw Iraqi forces from Kuwait? Who could make the decision to further destabilize the Persian Gulf through the use of conventional or unconventional force? On what did that actor depend to retain power? What could we threaten or attack that would cause that actor to realize that the consequences of continuing in his chosen course of action were outweighed by the certain results?

The formulators of the air campaign decided that the key actor--and, thus, the center of gravity--was Saddam Hussein and the Hussein Regime. The coalition could achieve its objectives through three potential results of their use of military force against that center of gravity: First, the regime might be removed through a coup or a

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[8] Clausewitz, On War, 602.
[9] Clausewitz, On War, 81.

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fortuitous strike on a military target which killed or incapacitated Saddam Hussein and key members of the ruling Revolutionary Council. Second, the Hussein Regime might come to the decision that the benefits of occupying Kuwait were outweighed by the costs. Those costs, for example, could be that the coalition would remove the forces and control systems upon which the regime depended to retain power. In this case, the regime would be faced with a choice of removing forces from Kuwait or losing power in Iraq. Third, the air campaign could remove the regime's ability to resist. In this final and most draconian result, the air campaign would cause remaining Iraqi forces in Kuwait to withdraw of their own accord, without waiting for orders from Baghdad.

One of the recurrent debates in the formulation of national security strategy is whether the focus when dealing with the "threat" should be on intentions or capabilities, or both. In the case of the Persian Gulf, it should be both--intentions *and* capabilities. In 1990 [and, unfortunately, today], a single actor existed who possessed both the intentions *and* the capabilities to threaten the stability of the Persian Gulf. That actor was Saddam Hussein, who clearly had the intentions (witness the invasion of Kuwait) and the capabilities (a million-man army and weapons of mass destruction) to destabilize the Persian Gulf. The Hussein Regime was the single "center of gravity" that linked the immediate goal (withdrawal of Iraqi forces from Kuwait) and the future goal (protecting the security and stability of the Persian Gulf). To use the words of Clausewitz, "The first principle is that the ultimate substance of enemy strength must be traced back to the fewest possible sources, and ideally to one alone."[10] That single source was the Hussein Regime. How, then, did the coalition turn this strategic concept-- striking at the "center of gravity"-- into tactical objectives in light of political constraints which limited the application of force directly?

While Saddam Hussein, and the immediate supporting members of his regime, represented the "center of gravity," an executive order precludes assassination, or direct removal. This is the first effect of the "political overlay" discussed earlier. Thus, the regime could be removed as a result of a strike on a military target (in which Hussein and the regime were "collateral damage"), or could be removed by a coup. While not the subject of this essay, the latter was clearly acceptable to the Bush Administration, according to Bob Woodward in his book, The Commanders. According to Woodward, at a 3 August, 1990, meeting of the National Security Council, "[President] Bush ordered the CIA to begin planning for a covert operation that would destabilize the regime and, he hoped, remove Saddam from power. ... He knew that covert action would be difficult if not impossible given that Saddam ran a police state and brutally repressed any dissent or opposition."[11] Was the hope of overthrowing the regime real? The potential for domestic strife was, and is, real. Iraq's Shiites, politically powerless but violently opposed to the Baathist Hussein regime, comprise 55% of Iraq's population.[12] They are held in check only by the regime's ruthless willingness to put down opponents. Iraq also has a history of violent changes of power. From 1920 to 1979, when the Baathists seized power, Iraq underwent thirteen coups d'etat.[13] The

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[10] Clausewitz, On War, 617.
[11] Bob Woodward, The Commanders, (New York: Simon & Schuster 1991), 237.
[12] , 74.
[13] Miller, "The Rise of Saddam Hussein," 77.

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regime *could* be overthrown but the coalition planners were unwilling to depend upon that fortuitous circumstance.

The key military objectives, then, were, first, the regime itself; second, the assets which allow the regime to stay in power; and, third, the assets which allow the regime to cause regional instability. In general, then, they targeted the bunkers in which the regime took shelter, the infrastructure used by the regime to control the population and government, and the forces/weapons the regime would use to threaten the Gulf's stability.

If they could not strike *directly* at the regime, they could *paralyze* the regime by striking at the critical assets which supported it. Those assets included internal control organizations, communications, electrical power, the transportation network, oil-refining capacity, and the Republican Guards.[14] The air campaign was designed to be conducted in three phases: a strategic element designed to attack the assets supporting the regime in Iraq, attacks in the Kuwaiti Theater of Operations to suppress enemy air defenses, and third, attacks on the Republican Guards and other elements of Iraq's army in Kuwait and Iraq.[15] According to Lieutenant General Charles A. Horner, the commander of Central Command Air Forces, the key objectives of the air campaign were the following:[16]

- Destroy/neutralize air defense command and control,
- Destroy nuclear, biological, and chemical storage and production capability,
- Render ineffective national and military command, control, and communications [C^3] infrastructure,
- Destroy key electrical grids and oil storage facilities,
- Deny military resupply capability,
- Eliminate long-term offensive capability, and
- Disrupt and weaken Republican Guard forces.

In applying Clausewitz and his "center of gravity" theory, however, it's important to differentiate between priorities--i.e., between the center of gravity (the highest priority), targets that directly represent the center of gravity, and those that are important but do not directly contribute to the center of gravity. One way to think about this is to keep in mind the difference between *ends* and *means*. The center of gravity depends on the political objectives--the ends--that drive the conflict. Other targeting objectives may be very important, but they are means to ends. This is illustrated in the case of an offensive war with limited aims ... where our goal is not the complete and utter defeat, and occupation, of a nation, but something less. In the case of the Persian Gulf, the goal was to get Iraq to withdraw and to remove the future threat to stability. That political overlay limits the application of power and affected the willingness of either side to give in. As Clausewitz said in discussing just this type of case, *"This is another reason why your effort will be modified.* [Emphasis in original]"[17]
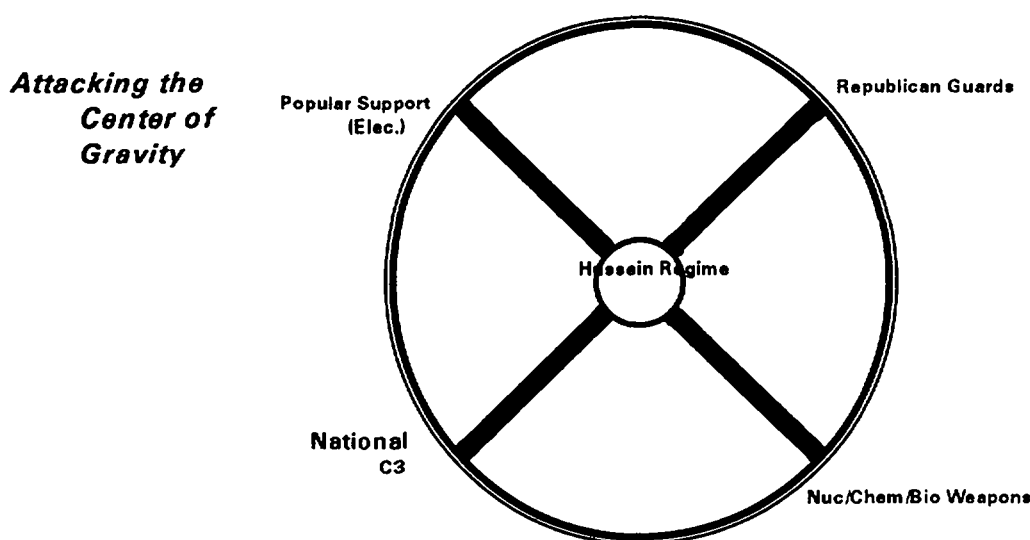
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[14] "Reaching Globally, Reaching Powerfully: The United States Air Force in the Gulf War" (Department of the Air Force: Sep 91), 12.

[15] "Reaching Globally, Reaching Powerfully: The United States Air Force in the Gulf War," 12.

[16] Charles A. Horner, "The Air Campaign," Military Review September 1991: 21-22.

[17] Clausewitz, On War, 80-81.

Clausewitz dictates that we should apply the highest priority to attacking the center of gravity--in this case, the Hussein regime. But the political overlay prevented us from striking directly at the center. One officer, who played a key role in the initial air campaign planning efforts, provided advice applicable in this situation in 1988: "In some cases, the commander must identify specific reachable centers of gravity, if he has neither the resources nor the authorization to act against the ultimate centers."[18] By that, he meant striking against reachable campaign objectives which support the center of gravity. In the case of the Persian Gulf, the key objectives of the air campaign in this category were: national C^3, long-term offensive capability, the disruption of the Republican Guards, and key electrical grids and oil storage (more will be said later about this last category and why it contributes directly to targeting the center of gravity, but a hint is in the labeling of this spoke). Those are shown graphically below, borrowing Clausewitz's metaphor of the center of gravity as a hub.

Attacking the Center of Gravity

Popular Support (Elec.)

Republican Guards

Hussein Regime

National C3

Nuc/Chem/Bio Weapons

The coalition could not strike directly at the hub, the Hussein Regime, but they could strike the spokes supporting the hub. Striking these tactical objectives supported the targeting of the "center of gravity" and offered an opportunity to strike at the single cog representing the enemy's intentions and capabilities. Note that air defense command and control does not appear as a spoke. While negating Iraqi air defenses was vital, because it allowed freedom of operation through air superiority, attacking them was not an attack against the center of gravity. It permitted the attack, but was not itself a direct attack. It was a means, not an end.

Turning to these campaign objectives, it's worthwhile to assess the contribution of each to the coalition objective of removing or paralyzing the Hussein Regime. Recall that in order to be a "spoke" in Figure 1's wheel, the objective must contribute directly to the negation of the hub.

First, let's look at the targeting of the national-level Iraqi command and control structure. The primary objective was clear: the coalition hoped the paralyze its opponent by striking at its nervous system--the C^3--

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[18] Colonel John A. Warden III, The Air Campaign: Planning for Combat (Washington, D.C.: National Defense Unversity Press, 1988), 10.

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severing the brains (the regime) from the appendages that did its bidding (the military forces). A secondary objective--supported by numerous comments by President Bush, General Powell, and General Schwarzkopf--was the elimination of Saddam Hussein. Similar to the Eldorado Canyon attack against Libya, the executive order forbidding assassination does not preclude death of a sovereign leader in the course of a military attack against a legitimate military target. In both cases, we were unlucky.

The second spoke represents the weapons of mass destruction: Hussein's arsenal of nuclear, chemical, and biological weapons (or components, in the nuclear case, pending the outcome of the U.N. team's findings). These weapons clearly supported the hub, and negating them just as clearly supported the coalition's political objectives.

The third spoke--representing the Republican Guards--is less clear-cut. An unquestioning reading of Clausewitz might lead one to assume the center of gravity should have been the entire armed forces of Iraq, including all the Iraqi army units inside Kuwait. But the center of gravity was Hussein and his regime. And the key armed forces units directly supporting the regime's maintenance of power were, and are, the Republican Guards. Using the ends-means simile, striking the Republican Guards contributed directly to accomplishing the coalition's political objectives, the ends that resulted in the war--that is, convincing Hussein to withdraw his forces and removing a long-term threat to Persian Gulf stability. For without the Republican Guards, upon whose personal loyalty Hussein depends for maintenance of the regime, the regime could not stay in power. The conventional Iraqi army units in Kuwait contributed to Hussein maintaining control of the situation in Kuwait, but the Republican Guards were vital to his maintaining control in *Iraq*. Thus, striking the Republican Guards was a direct blow aimed at convincing Hussein to withdraw--an end. Striking conventional Iraqi Army units meant lower casualties during the ground phase--a means.

The final spoke--popular support for the Hussein regime--also deserves brief elaboration. Military actions against this spoke were affected by political considerations. The four spokes are proxies for the Hussein regime, which was precluded from direct targeting by political considerations. Similarly, the coalition could not directly attack the popular will to continue the conflict for at least two reasons. First, in an autocratic society, the populace has little voice in decision-making. Thus, targeting people had little direct payoff and ran the risk of eroding domestic support for the war. Second, President Bush wanted to ensure he made clear this was not a war against *Arabs*, this was a war against *Hussein*. After all, Arabs made up a sizable percentage of the coalition. Thus, the planners had to find proxies for direct attacks against civilian will. Rather than causing civilian casualties, as Douhet advised, the targeteers selected key creature comforts, or, in some cases, the very means for subsistence--electricity and petroleum--as proxies to erode civilian will to continue. What Douhet suggested we do through poison gas and bombing was politically impossible. As stated in many forums, our war was with the Hussein regime, not the Iraqi people. As President Bush said, "Our goal is not the conquest of Iraq. It is the liberation of Kuwait. It is my hope that somehow the Iraqi people can, even now [16 January 1991], convince their dictator that he must lay down his arms, leave Kuwait, and let Iraq itself rejoin the family of peace-loving

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nations. "[19] Clearly President Bush hoped the Iraqi people would "vote" by overthrowing Hussein and his regime.

Now, let's turn briefly to a critical assessment of the application of Clausewitz's theory in the Gulf, using Clausewitz's trinity of leadership, military, and populace. First, this was a limited war--but that does not negate the theory of a center of gravity. It just means that the coalition was constrained in the application of force to the center of gravity. The key to achieving limited objectives was to either remove the leadership that had ordered Iraqi forces into Kuwait, or to convince the leadership that the benefits of staying there were outweighed by the consequences. In any case, the center of gravity was the regime--the only actor who could keep the Iraqi forces in Kuwait. How did the air campaign strike against the regime? First, it struck the Republican Guards upon whom the regime depends to maintain an uneasy control over the Iraqi people. Second, while political constraints precluded direct targeting of the Iraqi people, the air campaign stretched the rubber band connecting the people to the leadership by completely destroying electrical generation and petroleum supplies. Third, the air campaign paralyzed the Iraqi command and control network. And, fourth, the air campaign devastated Hussein's supply of weapons of mass destruction.

In my opinion, it's not very helpful to discuss whether the air campaign could have accomplished all the coalition objectives alone. *Desert Storm* was a joint air-ground-sea operation, as most future operations will be. And even though there was a 100-hour ground operation after a 39-day air war, Hussein still had Scud missiles and chemical weapons we could not target. Thus, the application of force did not accomplish all the objectives *directly*. The air campaign did, however, strike directly at the Hussein Regime. It forced the regime to make the costs-benefits decision that resulted in Hussein pulling his forces out of Kuwait and grudgingly permitting U.N. inspectors to find and destroy remaining stocks of weapons of mass destruction, thus accomplishing the coalition's political objectives.

In summary, while the air campaign contributed significantly to achieving all military objectives in the Gulf, air strikes against the four key strategic objectives--the spokes supporting the hub of all power and movement-- contributed directly to achieving the political objectives of the coalition in the Gulf. The developers of the air campaign owe a debt to the strategic vision of Clausewitz in his formulation of the "center of gravity." Clausewitz's theory offers a valuable tool in the prioritization of strikes and targeting--by differentiating based on ends and means--and can lead to the ultimate economy of force: bringing our strength to bear at the decisive point, an enemy's center of gravity.

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[19] President Bush, "The Liberation of Kuwait has Begun" Speech, 16 January 1991.

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